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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/015,848   | 12/10/2001  | Adrian W. Payne      | GB 010002           | 7605             |
| 24737  | 7590        | 09/02/2005           | EXAMINER            |                  |
| PHILIPS INTELLECTUAL PROPERTY & STANDARDS<br>P.O. BOX 3001<br>BRIARCLIFF MANOR, NY 10510 |             |                      | PERILLA, JASON M    |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2638                |                  |

DATE MAILED: 09/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |
|------------------------------|------------------------|---------------------|
|                              | 10/015,848             | PAYNE ET AL.        |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |
|                              | Jason M. Perilla       | 2638                |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 06 July 2005.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1,2 and 4-18 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1,2,5-8,10,11,13,14,16 and 17 is/are rejected.

7)  Claim(s) 4,9,12,15 and 18 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 06 July 2005 is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_

5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_\_

## **DETAILED ACTION**

1. Claims 1, 2, and 4-18 are pending in the instant application.

### ***Drawings***

2. The replacement drawing sheets filed July 6, 2005 are accepted by the Examiner.

### ***Response to Arguments/Amendments***

3. In view of the amendments to the claims filed July 6, 2005, the claim objections set forth in the first office action dated April 1, 2005 have been withdrawn.

4. In view of the amendments and remarks, the rejections of claims 10-12 under 35 U.S.C. §112, first paragraph, have been withdrawn.

5. Applicant's arguments with respect to the rejection of claim 5 under 35 U.S.C. §112, first paragraph, set forth in the first office action have been fully considered but they are not persuasive. The Applicant corrected antecedent basis in the claim, but the cited page 8, lines 6-11 of the specification do not make the claim language definite.

6. In view of the Applicant's amendments to the claims and remarks filed July 6, 2005, the prior art rejections set forth in the first office action have been withdrawn.

7. New prior art rejections are set forth below.

### ***Claim Objections***

8. Claims 1-9 are objected to because of the following informalities:

Regarding claim 1, in line 8, "the selected threshold value" is lacking antecedent basis.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 5, the claim is indefinite because one skilled in the art is unable to determine the meaning of "a more recent bit period" and "a preceding bit period". Bit periods are not clearly defined in the claim or the parent of the claim. Further, one skilled in the art is not able to determine relative differences between "more recent" and "preceding" bit periods because no reference is available to gauge bit positions or orders. For instance, the individual terms "more recent" and "previous" have no positional basis even relating to each other.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Fumio Sugiyama (IDS paper April 22, 2002, reference AL; hereafter "Fumio" – References made to included English translation)

Regarding claim 13, Fumio discloses according to figure 4 a receiver having a variable threshold slicer, comprising means for deriving a demodulated bit signal (slicer 2), means for storing a plurality of threshold values (6a-6d), each of the plurality of threshold values being selectively (7b) adjustable (figure 5; detail of threshold values 6a-6b; pg. 7, last 2 lines – pg. 8, line 7), means for selecting (7a) one of the plurality of threshold values for comparison with a current bit (1) and for adjustment in response to a sequence of N bits (5b) received prior to the current bit and means for using the current bit to update (8, 12a, 12b, 13, 15, 16) the selected threshold value (output 17; pgs. 7 and 8).

***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 1, 2, 7, 8, 10, 11, 13, 14, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al (US 5459762; hereafter "Wang" – previously cited) in view of Fumio Sugiyama (IDS paper April 22, 2002, reference AL; hereafter "Fumio" – previously cited, reference is made to translation submitted with first office action).

Regarding claim 1, Wang discloses According to claim 1, Wang discloses according to figure 6 a method of determining the value of a signal ( $I_1$ ), in which N previously detected bits (where N is at least 2) of a demodulated bit stream (630 and 640; col. 2, lines 29-31) are used to select (650) which one of a plurality of threshold

levels (fig. 7) against which the current demodulated bit is to be compared in a bit slicer (620); intermittently (fig. 7, ref. 615) integrating the demodulated bit stream over at least two bit periods (fig. 6, refs. 600 and 610) and comparing (fig. 6, ref. 620) the results with a selected threshold level (fig. 6, ref. 650). Wang discloses using the output of the slicer (620) to update the threshold level (650) which is applied to the slicer (negative input of slicer) for comparison against the integrated demodulated bit stream (positive input of slicer). Wang does not explicitly disclose that the result of the comparison output of the slicer is used to update the *value* of the selected threshold level chosen. However, Fumio teaches an analogous slicer, according to figure 5, wherein two bits held in the register (4) of a demodulated bit stream (1) (pg. 7, lines 9-10) are used to select (5a, 7a; pg. 7, lines 13-15) one of a plurality of threshold levels (6a-6d) against which the current demodulated bit is to be compared in a bit slicer (2), and of which ***value is to be updated*** using the current demodulated bit (8, 7b, fig. 5; pg. 7, lines 16-18). Fumio teaches that, accordingly to his invention, “even in a case where a judgment threshold value deviated from an optimal threshold value due to the variation of the AC level or DC level of an input signal, [the updating is] to correct & assimilate the judgment threshold value toward *the optimal value* on every data arrival occasion and *to render correct data judgments in a stable value after the assimilation*” (pg. 6, “effects of the invention”). Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made to utilize the threshold value updating as taught by Fumio in the method of Wang because it could advantageously be utilized to render correct and stable data judgments after iteratively updating the threshold values.

Therefore, the references 630, 640, and 650 (fig. 6) of Wang would be replaced by references 6, 5a, 5b, 8, 9, 7a, 7b, and 6a-6d (fig. 5) of Fumio.

Regarding claim 2, Wang in view of Fumio disclose the limitations of claim 1 as applied above. Further, Fumio discloses having 2 mean estimators (fig. 5, refs. 12a and 12b; pg. 8, lines 1-10) associated with each of the threshold levels (fig. 5), and for a selected one of the threshold levels obtaining the average or difference value (fig. 5, ref. 13) of the associated 2 mean estimators and using the result as the current selected one of the threshold values (fig. 5, ref. 17).

Regarding claim 7, Wang in view of Fumio disclose the limitations of claim 1 as applied above. Further, in the method of Wang in view of Fumio, Fumio provides, according to figure 4, selecting (7b) one of the plurality of preset default threshold values in accordance with a bit sequence (stored in 5b) formed by the N previously detected bits (stored in register 6) and a latest detected bit (a(t)) as determined by the bit slicer (Wang; fig. 6, ref. 620), obtaining a demodulated signal integrated over at least two bit periods (output of switch 615 of Wang), subtracting (Fumio; fig. 5, ref. 8) the demodulated signal from the one of the plurality of selected preset default values to produce a dc offset estimate (output of subtracter), deriving a mean dc offset (Fumio; fig. 5, refs. 12d or 12b; pg. 8, lines 1-10) from the current dc offset and a plurality of preceding dc offset estimates (average 12a or 12b), combining the mean dc offset estimate with a selected threshold value (Fumio; fig. 5, ref. 16) and applying via a switch (Fumio; fig. 5, ref. 7a) the combined signal to a threshold input (Wang; fig. 6, ref. 620, negative input) of the bit slicer.

Regarding claim 8, Wang in view of Fumio disclose the limitations of claim 7 as applied above. Further, Fumio discloses subtracting the dc offset (fig. 5, ref. 8) estimate from the demodulated signal prior to updating the selected threshold value.

Regarding claim 10, Wang in view of Fumio disclose the limitations of the claim as applied to claim 10 above.

Regarding claim 11, Wang in view of Fumio disclose the limitations of claim 10 as applied above. Further, Fumio discloses that the mean dc offset estimate (fig. 5, refs. 11a, 11b) is combined with a selected (via switch 7a, fig. 4) threshold value (fig. 5, ref. 16) and in that the combined (fig. 5, ref. 15; pg. 7, last 2 lines – pg. 8, line 7) signal is applied to a threshold input of (Wang; fig. 6, ref. 620, negative input) the bit slicer.

Regarding claim 13, Wang in view of Fumio disclose the limitations of claim 13 (see Fumio alone 102(b) claim 13, above) as applied to at least claim 1 above.

Regarding claim 14, Wang in view of Fumio, disclose at least the limitations of claim 13. Further, Wang discloses the non-continuous integrate and dump stage as applied to claim 1 above.

Regarding claim 17, Wang in view of Fumio disclose at least the limitations of claim 13 as applied above. Further, Fumio discloses the remaining limitations of claim 17 as applied to claim 7 above.

15. Claims 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Fumio, and in further view of Kranz (US 6046643).

Regarding claim 6, Wang in view of Fumio disclose the limitations of claim 1 as applied above. Wang in view of Fumio disclose integrating the demodulated bit stream

as applied to claim 1 above but do not explicitly disclose oversampling the demodulated bit stream and weighting the samples to generate a demodulated signal to be compared. However Kranz teaches a method of oversampling (fig. 1, ref. A) and weighting (fig. 1, ref. g2) a bit stream (col. 3, lines 28-30). One skilled in the art is aware that the oversampling and weighting of a bit stream provides a more accurate interpretation of an bit stream into a digital form. Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made to utilize oversampling and weighting as taught by Kranz in the method of Wang in view of Fumio.

Regarding claim 16, Wang in view of Fumio disclose the limitations of claim 13 as applied above. Further, Wang in view of Fumio, and in further view of Kranz disclose the remaining limitations of claims 16 as applied to claim 6 above.

***Allowable Subject Matter***

16. Claims 4, 9, 12, 15, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Perilla whose telephone number is (571) 272-3055. The examiner can normally be reached on M-F 8-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jason M. Perilla  
August 25, 2005

jmp



CHIEH M. FAN  
PRIMARY EXAMINER